

Web Site Guide to Global Climate Change, Second Edition



Web Site Guide to Global Climate Change, Second Edition

July 1999

by the Research Library for the Resource
Conservation and Recovery Act (RCRA)
U.S. Environmental Protection Agency
Region 1, New England
(a contractor-operated facility, GCI)

Contact Information

We encourage you to use the Internet to find these Web sites. The Research Library for the Resource Conservation and Recovery Act (RCRA) was able to locate each one at some time between November of 1998 and April of 1999.

Note that the Internet can be an unreliable research source. Web sites and pages are dynamic, as is the Internet; what is here today may be gone tomorrow, and new pages and sites are created on an ongoing basis. Please do not contact us if you cannot find a Web site listed in this document.

We have included a rudimentary index at the back of this *Directory*. Please note that Web site categories are referenced by citation numbers, not by page numbers.

The Research Library for RCRA is part of the Solid Waste and Global Climate Change Team, and can be contacted at: FRIEDMAN.FRED@EPA.GOV or by mail at U.S. EPA Region 1, 1 Congress St., Suite 1100 (SPP), Boston, MA 02114-2023.

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1 CONGRESS STREET
SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

Dear Environmental Stakeholder,

I am pleased to provide you with the second edition of the *Web Site Guide to Global Climate Change*, created by the Environmental Protection Agency's New England office. This guide provides a listing of World Wide Web addresses for numerous public and private organizations that are involved in the important issues of global climate change.

Leaders in virtually all sectors—education, academia, government, health, science, and business among them—face many challenges when it comes to assuring the health and economic well-being of citizens, as well as a safe environment in which to live. Those challenges will intensify in coming years from the risks that could arise from global climate change.

Because of the potential far-reaching impacts associated with climate change, we at EPA are committed, among other efforts, to playing a critical role in educating the public about this issue. It has been said that "information is power." It is my sincere hope that by stimulating interest and the exchange of ideas concerning climate change, we can empower students, teachers and parents with the ability to help us address what could prove to be the most significant environmental policy issue that we will face in the 21st Century.

Sincerely,

A handwritten signature in black ink, appearing to read "John P. DeVillars", is positioned above the printed name.

John P. DeVillars
Regional Administrator

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Inclusion of information about an organization, a product, or a service does not represent endorsement by the United States Environmental Protection Agency; nor does it represent U.S. EPA opinion, policy, or guidance unless specifically indicated.

Environmental Education

1 Name of Site: AskEric

Address of Site: <http://askeric.org/virtual>

Site Description

A networking Web site for children; there is some environmental education information and some global climate change information here.

Appropriate Audience

Grades 4–12

Examples of Contents

- ▶ Education mailing lists and archives
- ▶ Television series companion materials
- ▶ Lesson guides (lots of climate change lessons under “Earth Science” category)
- ▶ “Newton’s Apple” education materials
- ▶ NASA education programs
- ▶ Education site links

2 Name of Site: Aspen Global Change Institute (AGCI)

Address of Site: <http://gcio.org/agci-home.html>

Site Description

AGCI is committed to linking global change science at its most advanced levels with education at the kindergarten through twelfth grade (K–12) level. AGCI’s Ground Truth Studies (GTS) curriculum is now used in over 750 schools in the United States and Canada. GTS is an activity-based science education program that integrates local environmental issues with global change topics and introduces remote sensing to students in elementary and secondary schools. By studying aerial and satellite images of their own regions, students gain new skills and insights into both local and global change. Students also engage in hands-on field measurements to “ground truth” or validate remotely-sensed data. GTS students experience the interplay of chemistry, physics, ecology, geology, sociology, economics, and many other disciplines, as they learn essential skills such as collecting, graphing and interpreting data.

Appropriate Audience

Grades K–12

Examples of Contents

Other educational efforts of AGCI include *EarthPulse News*, an electronic global change update for educators and *EarthPulse Notes*, a resource of current article summaries on a wide variety of global change topics.

3 Name of Site: Climatologist's Toolbox

Address of Site:

<http://whyfiles.news.wisc.edu/021climate/index.html>

Site Description

The “Why File” was founded in 1996. Its mission is to explore the issues of science, math and technology that lurk behind the headlines of the day and to present those topics in a clear, entertaining and accessible manner. Typing “climate change” into the search box will draw up a list of available resources on the site concerning that topic.

Appropriate Audiences

Grades 4–12 • College • Teachers

Examples of Contents

- ▶ Arctic climate experiment (Two biologists walk from the icebreaker *Des Groseilliers* toward their lab)
- ▶ Climate change and mosquito-borne disease (Does “warmer” equal “buggier?”)
- ▶ “Climate Calamity” (Some climatologists are convinced that some civilizations defined as pre-Columbian rose and fell to the rhythms of climate change)
- ▶ Climate bibliography (Check this out!)
- ▶ Climate glossary
- ▶ “Models, Models” (“The supercomputer-driven climate model”; “The sledgehammer of modern climatology” etc.)
- ▶ “Ringers” (“Talking Trees: A Living Diary of Climate,” etc.)
- ▶ “Stick This Under Your Tongue” (“Taking our Planet’s Temperature,” “Signs of a Global Warming Fever, or Just Noise?”)
- ▶ “You’re Getting Warmer” (“What’s This Cinder Doing In My Core Sample?”)

4 Name of Site: Earth and Sky

Address of Site: <http://www.earthsky.com>

Site Description

Earth and Sky is a daily science radio series heard throughout the United States. Deborah Byrd and Joel Block discuss popular science subjects that affect our everyday lives. Lasting for only a few minutes, the show is interesting enough to capture the attention of adults, and simple enough that it can be understood by children. This site contains not only radio show transcripts from shows past, but other educational resources.

Appropriate Audiences

Grades 4–9 • Teachers

Examples of Contents

- ▶ A sampling of past radio show transcripts: “Icehouse, Greenhouse” (September 6, 1996); “Growing Season Longer?” (February 5, 1997); “Gas Hydrates” (January 8,

1998); “Warming Signs” (April 21, 1998); “The Frozen Past” (April 24, 1998); “Selective Extinction” (May 26, 1997); “Sea Level Rise” (June 10, 1998); “Brighter Sun, Warmer Earth?” (July 24, 1998); “Is Antarctica Melting?” (July 25, 1998); “Urban Heat Islands” (August 21, 1998); “Urban Forests” (August 22, 1998); “Melting Ice Shelves” (October 9, 1998); “Martian Rain” (October 11, 1998); “Landsat” (December 18, 1998)

- ▶ “Teacher’s Lounge”: “How to Use *Earth and Sky*”; “Young Producers”; “Teacher Talk”; “Virtual Textbook”; “Teacher’s Resource”; “Earth in the Classroom”

5 Name of Site: Eisenhower National Center

Address of Site:

<http://watt.enc.org/cgi-bin/ftmcsearch2.pl>

Site Description

This is a science education site which introduces Global Climate Change topics principally to teachers. Grade-specific units are introduced with backup ordering capability. Typing “global warming” into the “search” icon box results in a list of curricular modules that can be used in the classroom.

Appropriate Audience

Teachers

Examples of Contents

Curricular modules: “Our Changing Planet: The FY 1997 U.S. Global Change Research” • “Global Warming: A Unit in Environmental Science” • “The NOAA Weather Page”

6 Name of Site: Envirolink

Address of Site: <http://library.envirolink.org>

Site Description

A set of services offered by the School of Natural Resources and Environment at the University of Michigan. Geared principally to teachers, this site has files of information, activities, curricular modules and resources on climate change. Ever-expanding. Click on the “Education Materials” link to find the contents listed below.

Appropriate Audience

Teachers

Examples of Contents

Click on the link for “Education Materials” to find the following: Air quality lesson plans, Information related to El Niño.

7 Name of Site: Exploratorium

Address of Site: <http://www.exploratorium.edu>

Site Description

The Exploratorium, a San Francisco children's science museum, has an Internet presence called "ExploraNet." Among its many files are ones with updated contents regarding global climate change, including "Science Learning Network"; "Corvis"; and "Science Information Infrastructure." Some are for students and some are for teachers. Our search for information on "Global Warming" yielded documents and links to NASA and the Lawrence Hall of Science in Berkeley, for example. Documents are rated by size, difficulty, etc. They have tried to "incorporate as much content as possible." Their "Project LINK" is also noteworthy as a way for students to interact with specialists.

Appropriate Audiences

Grades 4–12 • Teachers

Examples of Contents

Atmospheric Science • Climate Change • Education Reform • Environmental Science • Global Warming • Greenhouse Gases

8 Name of Site: The Infinite Power of Texas

Address of Site: <http://www.infinitepower.com>

Site Description

The purpose of this Web site is to educate the public about the potential and the benefits of renewable energy in Texas. It hopes to offer you detailed background information about renewable energy and to encourage and empower you to use more renewable energy in your daily life.

Appropriate Audiences

Grades 7–12 • College • Teachers • Business

Examples of Contents

"Carbon Pollution Calculator Worksheet" • "Electric Power Pollution Calculator" (worksheet) • "PV Economic" (worksheet) • "Water Heater Calculator Worksheet" • "What's a Watt" (information) • "Fact Sheets for Classrooms and Teachers"

9 Name of Site: Planetvision

Address of Site: <http://www.envirolink.org/orgs/edf>

Site Description

Official Web version of the exhibit, “Global Warming: Understanding the Forecast,” developed by Planetvision and the EDF. Explains the history of the issue, why recent atmospheric changes are a problem and gives examples of ways to reduce emissions of greenhouse gases. Includes games and activities.

Appropriate Audiences

Grades 4–12

Examples of Contents

“Rising Waters: Coastal Flooding” • “Health” • “Food and Water” • “Global Warming’s Impact on Nature” • “Climate Models” • “Mitigation Strategies”

Educational Institutions

10 Name of Site: Atmospheric Research and Info Centre (ARIC)

Address of Site: <http://www.doc.mmu.ac.uk/aric/gcc/gcciphm.html>

Site Description

ARIC, established in 1984 and based at Manchester Metropolitan University, is a leading supplier of research, consultancy, and information skills and services for the study and resolution of air quality problems. The Atmosphere, Climate and Environment Information Programme produces a range of teaching and study materials on climate change, air quality, acid rain and ozone depletion. There is a charge for some materials, while others are free of charge.

Appropriate Audience

Grades 4–12

Examples of Contents

Free resources: “Global Climate Change Fact Sheet Series” • “Air Quality and Acid Rain Fact Sheet Series” • “Ozone Depletion Fact Sheet Series”

11 Name of Site: Center for Integrated Study of the Human Dimensions of Global Change

Address of Site: <http://freyja.epp.cmu.edu/>

Site Description

Social and scientific information is supplied through educational information, brochures, and government documents in order to provide students with a framework for looking at climate issues, the human dimensions surrounding them, and decision making processes that affect global change.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

Degrees of Change newsletter • “ICAM 2.0” (model that provides a qualitative measure of the confidence with which certain policies can be adopted)

12 Name of Site: Climatic Research Unit of the United Kingdom

Address of Site: <http://www.cru.uea.ac.uk/>

Site Description

Consisting of a staff of about thirty research scientists and students, the Unit has developed a number of the data sets widely used in climate research, including the global temperature record used to monitor the state of the climate system, as well as statistical software packages and climate models. The aim of the Climatic Research Unit is to improve scientific understanding in three areas: past climate history and its impact on humanity; the course and causes of climate change during the present century; and prospects for the future.

Appropriate Audiences

Grades 10–12 • College • Teachers

Examples of Contents

- ▶ Data and software for download: “Temperature (Gridded; Hemispheric and Global Averages)”; “Pressure (MSLP)”; “North Atlantic Oscillation (NAO)”; “Southern Oscillation Index (SOI)”; “Lamb Weather Types”; “Global Precipitation”; “Regional Climatologies”; “UK Climate: Monthly Summaries”; “Mediterranean Climate”; “GCM Output”; “NCEP/NCAR Reanalysis”
- ▶ Projects and Research: “Palaeoclimatology”; “Dendroclimatology”; “Present-day Climate and Climatological Datasets”; “Construction of Observed Climatologies”; “Observed Climate Change”; “Mediterranean Desertification”; “Drought in the Sahel”; “Instrumental Climate Change”; “Natural Climate Variability”; “El Niño Southern Oscillation (ENSO)”; “North Atlantic Oscillation (NAO)”; “Climate Change Detection and Attribution”; “Climate Variability and the ‘Missing Carbon’ Sink”; “Simulated Future Climate”; “Construction of Climate Change Scenarios”; “Downscaling of Scenarios to Local Scales”; “Evaluating Climate Models”; “Climate Change and Sea Level with Simple Climate Models”; “Impacts of Climate Variability and Change”; “Impacts of Weather Extremes on UK and Europe”; “Climate Change and Africa”; “Climate and Development”; “Vulnerability to Climate Change in East Africa”; “Application of Climate Information”; “Climate Change Over Very Long Timescales”; “Wind Climatology”; “Links Between Atmospheric Circulations and Transport/Deposition of Air Pollution”; “Surface Ozone”; “Atmospheric Sciences and Hydrology”; “Stratosphere-troposphere Exchange”; “Acidic Episodes in Surface Water”

13 Name of Site: The Global Warming International Center

Address of Site: <http://www2.msstate.edu/~krreddy/glowar/glowar.html>

Site Description

The Global Warming International Center (GWIC) is an international body disseminating information on global warming science and policy, serving both governmental and non-governmental organizations, and industries in more than 120 countries. It sponsors unbiased research supporting the understanding of global warming and its mitigation.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“The Global Treeline Projects (GTP)” • “Greenhouse Gas Reduction Benchmark (GHGRB)” • “The Himalayan Reforestation Project (HRP)” • “The Extreme Event Index (EEI)” • “9th International Global Warming Conference and Exposition (GW9)” • “The 8th Global Warming International Conference and Expo” • “The 7th Global Warming International Conference and Expo”

14 Name of Site: Harvard: Center for Global Health and the Environment

Address of Site: <http://www.med.harvard.edu/chge/>

Site Description

The mission of the Center is to educate about the potential human health consequences of global environmental change, and to promote a wider understanding of these consequences. The Center believes that people will be motivated to protect the global environment when they have recognized the risks to their health and lives, and to those of their children.

Appropriate Audiences

Specialists • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- ▶ The *CHGE Quarterly Newsletter* has these sections in addition to others: “Global Climate Change”; “Habitat Degradation”; “Loss of Species and Biodiversity”; “Stratospheric Ozone Depletion and UV-B Radiation”; “Toxins”; “Population Dynamics”; “Economic Issues”
- ▶ The “Global Climate Change” section includes: “Health Impacts: Highlights and Recent Publication”; “The Physical and Biological Evidence”; “Extreme Weather Events and Climate Variability”
- ▶ The “Stratospheric Ozone Depletion and UV-B Radiation” section includes: “Satellite and Epidemiological Data”; “Health Impacts” (skin cancer, cataracts, the immune response); “Ecological Impacts”

15 Name of Site: Iowa State University Global Change Program

Address of Site: <http://www.iitap.iastate.edu>

Site Description

The International Institute of Theoretical and Applied Physics (IITAP) is located at Iowa State University in Ames, Iowa. Its organizational goals include bridging effective communication between U.S. scientists and their counterparts in developing countries especially concerning environmental science.

Appropriate Audiences

Grades 10–12 • College • Teachers

Examples of Contents

Internet-based course on global environmental change (GCP) • News releases • Student papers (1996 and 1997) on climate modeling or climate change • Interactive discussion for global change course • “Project to Intercompare Regional Climate Simulation (PIRCS)” • “Renewable Sources of Energy Library”

16 Name of Site: Kids as Global Scientists

Address of Site: <http://www.onesky.umich.edu/kgs99/>

Site Description

Engages students in inquiry-based weather curriculum. Many files including discussion groups, research curriculum, scientific models and modeling techniques. Explains how to use data and to apply it regionally.

Appropriate Audiences

Grades 7–12 • College • Teachers

Examples of Contents

“Real-time Weather Visualization” • “Curriculum” • “Activities” • “Hurricanes” • “Pictures”

17 Name of Site: National Center for Atmospheric Research: Environmental and Societal Impacts Group

Address of Site: <http://www.dir.ucar.edu/esig/>

Site Description

ESIG is a multi-disciplinary research group focusing on the impacts of society on the environment and of the environment on society. Their objective is to provide insights into how societies might better understand and cope with the interactions between human activities and changes in environmental, particularly atmospheric, processes.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “Network Newsletter”
- ▶ Research Information: “Climate Scenario Generation”; “Forecasting by Analogy”; “Impact on Water Resources”; “Impact on Fisheries”; “Policy Aspects”; “Social Adjustments to Perceived Climate Risk”
- ▶ Outreach Information ”
- ▶ “Weather Impacts Sites”

18 Name of Site: National Science Teachers Association

Address of Site: <http://www.nsta.org>

Site Description

Many files provide resources relevant to K–12 teachers and students. Curriculum modules provided by or relying upon NASA feeds. Frequent interdisciplinary orientations. “Mission to Planet Earth,” for example, is a grade 6–9 pilot in science learning including, but not exclusively about, climate change.

Appropriate Audiences

Grades 7–12 • Teachers

Examples of Contents

- ▶ “Exploring the Environment”: Curriculum module using NASA remote-sensing databases
- ▶ “Mission to Planet Earth”: For middle school teachers; includes problem-based learning in global warming, scientific misconceptions, and human/planetary interaction.

19 Name of Site: New England Climate Change Workshop White Reports

Address of Site: <http://www.necci.sr.unh.edu/>

Site Description

Educates stakeholders on the current understanding of New England regional climate change issues. Elicits input and feedback regarding perspectives of climate-related issues.

Appropriate Audiences

Grades 7–12 • College • Teachers • Policymakers • Public Relations

Examples of Contents

“USGCRP Workshops” • “New England Issues” • “Greenhouse Effect” • “Global Warming” • “Climate Change Processes” • “Climate Patterns and El Niño–Southern Oscillation” • “Rates of Green House Gas Emissions” • “Importance to New England” • “Impacts on Tourism” • “Impacts on Coastal Issues” • “Impacts on Human Health”

20 Name of Site: Northeast Region Climate Center

Address of Site: <http://met-www.cit.cornell.edu/>

Site Description

Established in 1983, the Northeast Regional Climate Center (NRCC) is located at Cornell University. It serves the 12-state region that includes Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia. The NRCC acquires accurate, up-to-date climate data and information; and disseminates it through this Web site.

Appropriate Audiences

Specialists • Grades 10–12 • College • Teachers

Examples of Contents

Databases • Current weather conditions/forecast information • Northeast climate impacts/monthly climate summary • Regional climate center links

21 Name of Site: Pace Energy Project

Address of Site: <http://www.law.pace.edu/env/energy>

Site Description

The Energy Project provides information with a legal bias concerning the electric power industry, the insurance industry, and alternative energy projects. Its file “Global Warming Central” provides “quick access to original information on both sides of the Global Warming Debate, experts, and links to more information.”

Appropriate Audiences

Grades 10–12 • College • Business • Public Relations

Examples of Contents

“Electric Power Industry Restructuring Activities” • “Global Warming Central” • “The Insurance Forum” • “St. Regis Mohawk/Pace Energy Joint Project” • “Benchmarking Air Emissions of Electric Utility Generators in the Eastern United States” • “The Consumer Energy Rating Project” • “Renewable Energy Technology Assessment” • “Pace/Tellus Institute Carbon Tax Study and Pollution Tax Forum”

22 Name of Site: Tiempo Climate Cyber Library

Address of Site: <http://www.cru.uea.ac.uk/tiempo/index.htm>

Site Description

The Tiempo Climate Cyberlibrary is an electronic information service covering global warming, climate change, sea-level rise and related issues. The Cyberlibrary provides access to authoritative news, views, briefing material, publications, data, analysis tools and educational resources on the subject of climate change, with particular reference to the situation of the developing world. You can explore the

Cyberlibrary using a set of floor plans, available as you enter, or search the site. Use the the country profiles facility for a guide to information about a particular nation. A collaborative project undertaken by the School of Environmental Sciences at the University of East Anglia (Norwich, UK) with the International Institute for Environment and Development (London, UK).

Appropriate Audiences

Grades 7–12 • College • Teachers • Business • Public Relations

Examples of Contents

- ▶ Check out the “Humour and Arts” section: global warming cartoons (under “Humour” section); “Art, Weather and Climate” pictures (under “Arts” section); “Literature” (under “Arts”); “Music” (under “Arts”)
- ▶ Check out the “Document Center”: Fact Sheets; Bibliographies; Periodicals

23 Name of Site: University Corporation for Atmospheric Research

Address of Site: <http://www.ucar.edu>

Site Description

The UCAR mission is to understand the behavior of the atmosphere and related systems and the global environment; and to foster the transfer of knowledge and technology.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

Climate: “Climate System Model (CSM)” • “Community Climate Model Version 3 (CCM3)” • “Climate Change” • “Climate System Model (CSM)” • “Global Dynamics” • “Oceanography” • “El Niño” • “Climate and Society”

24 Name of Site: University of Delaware: Synoptic Climatology Lab

Address of Site: <http://www.udel.edu/SynClim/scl.html>

Site Description

Synoptic climatology is essentially a holistic approach to weather and climate. Synoptic climatologists attempt to characterize an entire weather situation that exists in a given area at a given time, in hopes of gaining a better understanding of both the atmospheric environment and its effects on the organisms that experience it. The synoptic climatology group performs research into a variety of applied climatological issues that affect humans and other organisms around the world.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business

Examples of Contents

“Asthma and Climate” • “Asthma and Air Pollution in Charlotte, N.C.” • “Climate/Mortality Relationships in U.S. Cities” • “The Dry Itchy Skin Index” • “Climate and Infectious Disease” • “Other Climate/Health Research”

25 **Name of Site:** University of Massachusetts: Climate Research Center

Address of Site: <http://www.geo.umass.edu/climate/climate.html>

Site Description

The Climate System Research Center is focused on the climate system, climate variability and global change issues, from contemporary climate variations, their causes and consequences, to paleoclimatic and paleoenvironmental changes. One item of principal interest on this page is the book *Paleoclimatology: Reconstructing Climates of the Quaternary* by Ray Bradley. View its title page and table of contents.

Appropriate Audiences

College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

Current Research and Projects: “Climate System Studies—Natural Variability and Climate Change Detection” • “Contemporary Snow Cover and Snowfall Variations—Their Feedbacks and Role in Climate Variability Over the Northern Hemisphere” • “High Resolution Lake Sediment Studies for Paleoclimatic Reconstruction” • “Laminated Lake Sediments from the Canadian High Arctic—Understanding the Climatic Signal for Paleoclimatic Reconstruction; Patterns of Organized Climatic Variability—Spatio-temporal Analysis of Globally Distributed Climate Proxy Records and Long-term Model Integrations” • “Workshop on Climate Variability in the Americas from High Elevation Ice Cores” • “Climate and Snow Research at High Elevations on Nevados Sajama and Illimani (Bolivian Andes)” • “Automatic Weather Station—Graham Bell Island, Franz Joseph Land, Russia”

26 **Name of Site:** University of New Hampshire: Climate Change Research Center (CCRC) and Institute for Earth, Oceans, and Space (EOS)

Address of Site: <http://www.grg.sr.unh.edu/ccrc/>

Site Description

The Climate Change Research Center (CCRC) is devoted to the retrieval and interpretation of global change records that document climate (response and forcing), biogeochemical cycling, atmospheric chemistry, unique atmospheric phenomena (e.g. extreme events, volcanic events, bio-mass burning) and the influence of human activities on our environment.

In 1985 the Glacier Research Group (now CCRC) helped to develop the Institute for the Study of Earth, Oceans and Space (EOS). EOS is a multi-disciplinary research institute dedicated to obtaining a scientific understanding of the Earth system and its environment in space.

Appropriate Audiences

College • Teachers • Business • Policymakers

Examples of Contents

“GISP2 (Greenland Ice Sheet Project)” • “NICL (National Ice Core Laboratory)” • HIPP (Himalayan Interdisciplinary Paleoclimate Project)” • “N.H. State Climatologist” • “Plan for U.S. ITASE (International Trans Antarctic Scientific Expedition)” • “NECI (New England Climate Initiative)”

27 Name of Site: Weather Underground

Address of Site: <http://groundhog.sprl.umich.edu>

Site Description

Encourages collaborations between students by learning about weather, patterns, charting trends in air currents, quality, and problems. A very user-friendly site.

Appropriate Audience

Grades 7–12

Examples of Contents

“Shared Air 1998”: Students observe the atmospheric quality and compare the observations • “Kids As Global Scientists”: Middle school program on weather • “Blue Skies”: Interactive weather maps

Federal Agencies

28 Name of Site: The CERES S’Cool Project (by NASA)

Address of Site: <http://asd-www.larc.nasa.gov/scool/>

Site Description

S’Cool is a project in which students provide ground-truth measurements to assist in the validation of the CERES (Clouds and the Earth’s Radiant Energy System) instrument, a climate research satellite. Students may also compare the surface and space-based observations to learn more about clouds and climate. Excellent opportunity for youngsters to learn about weather and climate science by taking part in ongoing research.

Appropriate Audiences

Grades 4–12 • Teachers

Examples of Contents

S’Cool *Breeze* newsletter • Satellite images (GOES infrared/visible, MEOSAT, and AVHRR) • “Teacher Resources” (ideas, labs, and lesson plans) • “Links for Kids”

29 Name of Site: Alternative Fuels Data Center (AFDC)

Address of Site: <http://www.afdc.nrel.gov/>

Site Description

The AFDC is operated by the National Renewable Energy Laboratory (NREL). The AFDC collects operating information from vehicles (in programs sponsored by the Alternative Motor Fuels Act) running on alternative fuels, analyzes those data, and makes them available to the public.

Appropriate Audiences

Grades 4–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Alternative Fuel Information” • “Alternative Fuels Hotline” • “Alternative Fuel Refueling Stations Locator/Maps” • “Alternative Fuel Vehicle Offerings (Light-duty and Heavy OEMs, Press Releases, and Related Links)” • “Alternative Fuel Provider and State Fleet Alternative Fueled Vehicle (AFV) Acquisition and Credits Database” • “Alternative Fuel Vehicle Fleet Buyer’s Guide” • “Research and Development Projects – Summaries and Citation Searches” • “Light-Duty Vehicle Program” • “Transit Bus Program” • “Emissions Program” • “Heavy Vehicle Program” • “U.S. DOE Hybrid Electric Vehicle Program” • “U.S. DOE Clean Cities” (A program that expands the use of alternative fuels)” • “U.S. DOE – OTT KIDS’ Page”

30 Name of Site: Climate Change and the Federal Budget (U.S. Congressional Budget Office)

Address of Site: <http://www.cbo.gov>

Site Description

Follow links to the “Studies and Reports” page and from there follow any environmental links given until the document above becomes a link itself. This memorandum was prepared at the Senate’s request, to document current U.S. efforts concerning global climate change, and to review current and proposed spending programs and tax policies concerning climate change.

Appropriate Audiences

Grades 4–12 • College • Teachers • Business • Policymakers

Examples of Contents

Table of Contents: “I. Climate Change, The Policy Challenge and Current Programs”; “II. Current and Prosed Spending Programs and Tax Policies Directly Linked to Climate Change”; “III. Other Federal Spending Programs and Tax Policies Associated with Climate Change”

31 Name of Site: Emissions of Greenhouse Gases in the U.S., 1987–1994 (by USDOE)

Address of Site: <http://www.eia.doe.gov/oiaf/1605/95report.html>

Site Description

This is a site managed by the Department of Energy that looks at a variety of sources of greenhouse gas emissions: industrial, agricultural, waste management sources. Some place-specific information. Most information is statistical.

Appropriate Audiences

College • Business • Policymakers

Examples of content

Estimates of sources for CO₂, Methane, Nitrous Oxide

32 Name of Site: Energy Information Administration (EIA)

Address of Site: <http://www.eia.doe.gov/environment.html>

Site Description

This is the greenhouse gases section of the Energy Information Administration's (EIA) Worldwide Web Server. This page directs you to EIA's information and offers links to other greenhouse gas and climate change sites of interest.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- ▶ “Climate Change and Greenhouse Gas Emissions”: “Emissions of Greenhouse Gases in the U.S. 1996”
- ▶ “Voluntary Reporting”: “The Voluntary Reporting of Greenhouse Gases Program”; “Mitigating Greenhouse Gas Emissions—Voluntary Reporting”; “General Guidelines and Sector-Specific Issues and Reporting Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases”
- ▶ “Utility Sector”: Environmental Externalities in Electric Power Markets—Acid Rain, Urban Ozone and Climate Change”
- ▶ “Transportation Sector”: “Alternatives to Traditional Transportation Fuels 1994”; “Volume 2—Greenhouse Gas Emissions”; “Climate Change Action Plan”
- ▶ “Environmental/Energy Legislation”: “Environmental Reviews”; “United Nations Framework Convention on Climate Change (UNFCCC)”

33 Name of Site: EPA's Global Warming Web site

Address of Site: <http://www.epa.gov/globalwarming>

Site Description

Information pertaining to global warming

Appropriate Audiences

Grades 4–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“In The News: Inside the Greenhouse” • “Greenwire” • “Upcoming Events” • “Speeches” • “U.S. Greenhouse Gas Inventory” • “Bibliography” • “Trends: Temperature, Precipitation, Sea Level” • “Atmospheric Change: Past,; Future” • “Future Climate: Global Temperature, Sea Level, U.S. Climate” • “Impacts” • “Health” • “Water Resources: Navigation; Hydropower; Water Supply and Demand; Recreation and Environmental Quality; Flood Control” • “Forests” • “Rangelands” • “Deserts” • “Non-tidal Wetlands” • “Coastal Zones” • “Agriculture” • “Fisheries: Inland Fisheries; Coastal Fisheries; Ocean Fisheries” • “Birds” • “National Parks” • “State By State Impacts”

34 Name of Site: EPA's Green Lights and Energy Star Programs

Address of Site: <http://www.epa.gov/energystar/>

Site Description

EPA has teamed with the private sector in developing voluntary partnerships. By encouraging the production and use of energy-efficient equipment, energy usage and air pollution can be drastically reduced.

Appropriate Audiences

College • Business • Policymakers • Public Relations

Examples of Contents

“U.S. EPA Energy Star Programs and Products:” “What’s New” • “Appliances” • “Homes” • “Residential HVAC” • “Office Products” • “Buildings” • “Green Lights” • “The *Bulletin* and the *Update*” • “Exit Signs” • “Small Business Program” • “Transformers” • “Free Information”

35 Name of Site: EPA's Office of Research and Development: Atmospheric Protection Branch

Address of Site: <http://www.epa.gov/crb/apb/index.htm>

Site Description

This climate-related program has conducted emissions evaluations primarily on methane, developed software for data storage and processing, researched improvements in biomass utilization for niche applications, and performed bench-scale evaluations of a replacement transportation fuel.

Appropriate Audiences

College • Teachers • Business

Examples of Contents

- ▶ “Greenhouse Gases”: “Sources and sinks”; “Emissions Software”
- ▶ “Greenhouse Gas Mitigation”: “Low-Global-Warming Chemicals and Refrigerant Technologies”
- ▶ “Actions”: “State and Local”—“By State”; “By City”; “National”: “Administration’s Program”; “Climate Change Action Plan”; “You Can Make a Difference”; “Global”

36 Name of Site: EPA’s Program on Economy and Environment

Address of Site: <http://www.epa.gov/oppe/eaed/eedhmpg.htm>

Site Description

This site concentrates on analyses of environmental economics with emphasis on benefit–cost analysis of environmental pollution controls, the use of economic incentives for pollution control, the environmental pollution control industry, and the relationships between economic growth and the pollution control.

Appropriate Audiences

Specialists • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

Many documents are available using “climate change” and “global warming” as keyword searches.

37 Name of Site: EPA’s State and Local Outreach Program’s Quarterly News letter “Inside the Greenhouse”

Address of Site: <http://www.epa.gov/globalwarming/greenhouse>

Site Description

Inside the Greenhouse is issued four times a year by the U.S. Environmental Protection Agency’s State and Local Climate Change Program. The purpose is to share news of innovative state and local programs to reduce greenhouse gas emissions.

Appropriate Audiences

Grades 10–12 • College • Business • Policymakers • Public Relations

Examples of Contents

- ▶ Articles: “Cities Take Action As Ecologists Give Warning on Global Warming”
- ▶ Links To Articles: “Seeking Success in Saint Paul”; “Oregon’s Proposed Power Plant Breaks New Ground”; “Checking Out Solstice, the CREST Web Site”; “Too Hot for Fish?”
- ▶ Conference information

38 Name of Site: EPA's State and Local Climate Change

Address of Site: <http://www.icf-infotech.com/ghg/ghg.nsf>

Site Description

This site serves as the State and Local Climate Change Database which provides an easily accessible compendium of information related to climate change issues. A major goal of the database is to promote an understanding of state and local greenhouse gas (GHG) emissions and strategies for reducing them. Data and information for the database come from several sources, including state agencies, EPA's Acid Rain Program, Department of Energy State Data Report, and the Census Bureau.

Appropriate Audiences

Specialists • Grades 10–12 • College • Teachers • Policymakers • Public Relations

Examples of Contents

“State GHG Emission Inventories” • “State GHG Action Plans” • “State Actions to Reduce GHG Emissions” • “NAAQS Non-attainment by County for Ozone and PM 10” • “Historic Emissions from Fossil Fuels” • “State Population and Economic Information”

39 Name of Site: Global Change Data Center

Address of Site: <http://www-tsdis.gsfc.nasa.gov/gcdc/gcdc.html#top>

Site Description

The mission of the Global Change Data Center is to develop and operate data systems, generate science products, and provide archival and distributional services for earth science data in support of the U.S. Global Change Program and the NASA Mission to Planet Earth.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business

Examples of Contents

- ▶ “U.S. Global Change Program”
- ▶ “GCDC Projects”: “AVHRR Pathfinder”; “Goddard Distributed Active Archive Center (DAAC)”; “Global Change Master Directory (GCMD)”; “Scientific and Educational Endeavors (SEE)”; “TRMM Science Data and Information System (TSDIS)”; “SeaWiFS Data Processing”

40 Name of Site: The Global Change Master Directory (by NASA)

Address of Site: <http://www.gcemd.gsfc.nasa.gov>

Site Description:

NASA's Global Change Master Directory is a comprehensive source of information about satellite and in situ Earth science data, with broad coverage of the atmosphere, hydrosphere, oceans, solid earth, and biosphere.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

“Global Change Conference Calendar” • “Global Climate Change WWW Sites Highlighted for October 1997” • “El Niño Southern Oscillation (ENSO) information from the NOAA Climate Prediction Center” • “Current status of the Southeast Asia forest fires via *CNN News*” • “The Smithsonian Conservation and Research Center” • “Smithsonian Tropical Research Institute”

41 Name of Site: Global Learning and Observations to Benefit the Environment (by NOAA)

Address of Site: <http://www.globe.gov>

Site Description:

GLOBE is a worldwide network of students, teachers, and scientists working together to study and understand the global environment. Students and teachers from more than 6,000 schools in more than 70 countries are working with research scientists to learn more about our planet. GLOBE students make environmental observations at or near their schools and report their data through the Internet. Scientists use GLOBE data in their research and provide feedback to the students enrich their science education. Global images based on GLOBE student data are displayed on the World Wide Web, enabling students and other visitors to visualize the student environmental observations.

Appropriate Audiences

Grades K–12 • Teachers

Examples of Contents

- ▶ “Teacher's Guide”: “Implementation”; “Atmosphere Investigation”; “Hydrology Investigation”; “Soil Investigation”; “Landcover/Biology Investigation”; “GPS (satellite) Investigation”; “Seasonal Investigation”; “Toolkit”
- ▶ “Student Investigations”: “Submit a Report”; “Archives”
- ▶ “Scientists' Corner”: “Meet the Scientists”; “GLOBE Instruments”; “Hydrology (Year of the Ocean Chat)”; “Chief Scientist”; “Soil”; “Atmosphere/Climate”; “Landcover/Biology, GPS (global positioning system)”
- ▶ “Globe Exchange”: “School Search”; “School to School”; “Partner Countries”; “U.S. Franchises,” etc.
- ▶ “Resources”: “Resource Room”; “Image Gallery”; “News and Events”

42 Name of Site: Internet in the Classroom (by NASA)

Address of Site: <http://quest.arc.nasa.gov/interactive>

Site Description

This site encourages interaction between students and NASA working professionals. Students are encouraged to read files and to ask questions. Some specific media broadcasts are transcribed and provided with teacher guides for classroom use. Not specifically devoted to a single topic. One specifically relevant topic has been in a file “live from Antarctica 2” where ice cores research is up for discussion. Much pictorial backup is provided.

Appropriate Audiences

Grades 7–12 • College • Teachers

Examples of Contents

“Discussions” • “Archives” • “Activities” • “Discussion Guides”

43 Name of Site: The Interstate Renewable Energy Council (IREC)

Address of Site: <http://www.eren.doe.gov/irec/refocus>

Site Description

The purpose of this site is to inform and educate readers about renewable energy and the environment, and challenge all of us to get more involved in promoting a clean energy future in federal, state and community forums.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

Renewable Energy Focus Newsletter with Links To: “Greenhouse Gases”; “Global Climate Change”; “Human Health”; “Why Environmentalists Should Support Solar Electricity”; “Climate Change and the Insurance Industry”

44 Name of Site: NASA: Goddard Institute for Space Studies,
Research on Global Change

Address of Site: <http://www.giss.nasa.gov/research/>

Site Description

Research at the Goddard Institute for Space Studies emphasizes a broad study of global change, an interdisciplinary research initiative addressing natural and man-made changes in our environment which occur on various time scales from decades to millennia and which affect the habitability of our planet. The research combines analysis of comprehensive global datasets with global models of atmospheric, land surface, and oceanic processes and includes study of past events on Earth such as paleoclimate change and the study of other planets as an aid to prediction of future evolution of Earth on a planetary scale.

Appropriate Audiences

College • Teachers • Business

Examples of Contents

“Global Climate Modeling” • “Earth Observations” • “Climate Impacts and Forcings” • “Planetary Atmospheres” • “Paleoclimate” • “Radiation” • “Atmospheric Chemistry” • “Astrophysics and Other Disciplines” • “Popular Science”

45 Name of Site: National Climate Data Center (by NOAA)

Address of Site: <http://www.ncdc.noaa.gov/>

Site Description

NCDC is the world’s largest active archive of weather data. NCDC produces numerous climate publications and responds to data requests from all over the world.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

Climate Resources

“Satellite Resources” • “Radar Resources” • “Climate Visualization” • “NOAA El Niño Page” • “NOAA National Data Centers’ Online Store

46 Name of Site: National Weather Service (by NOAA)

Address of Site: <http://www.nws.noaa.gov>

Site Description

The National Weather Service provides weather and flood warnings, public forecasts and advisories for all of the United States, its territories, adjacent waters and ocean areas, primarily for the protection of life and property. NWS data and products are provided to private meteorologists for the provision of all specialized services.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Climatic Data” • “NWS National Centers”

47 Name of Site: U.S. Bureau of Oceans, Environment and Science**Address of Site:** <http://www.state.gov/www/global/oes/index.html>**Site Description**

The Bureau of Oceans and International Environmental and Scientific Affairs is the Department of State's focal point for foreign policy formulation and implementation in global environment, science, and technology issues.

Appropriate Audiences

College • Business • Policymakers • Public Relations

Examples of Contents

- ▶ "Climate Change and the Ozone Layer"
- ▶ "Issue Spotlight": "Global Climate Change"; "Southeast Asia Fire and Air Pollution"; "1997 Climate Report"
- ▶ "White House Initiative on Global Climate Change"
- ▶ "Climate Change Update"
- ▶ "Climate Action Report"
- ▶ "El Niño information from the National Oceanic and Atmospheric Administration (NOAA)": "El Niño Theme Page"; "El Niño Southern Oscillation Home Page"; "What is an El Niño?"; "El Niño and Climate Prediction—A Report to the Nation"
- ▶ "Montreal Protocol": "Our Global Future: Climate Change—before the Royal Botanical Gardens, Kew, Surrey, U.K. (September 15, 1997)"
- ▶ "Climate Change": "Draft Protocol to the Framework Convention on Climate Change—U.S. Policy on Climate Change, Washington, DC (June 19, 1997)"
- ▶ "Framework Convention on Climate Change"

48 Name of Site: The USDA UV-B Radiation Monitoring Program**Address of Site:** <http://uvb.nrel.colostate.edu/UVB>**Site Description**

A program of the U.S. Department of Agriculture's, provides information on the geographical distribution and temporal trends of UV-B (ultraviolet -B) radiation in the United States. This information is critical to the assessment of the potential impacts of increasing ultraviolet radiation levels on agricultural crops and forests.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ "The research network, which is still in a planning phase, will deploy high resolution spectroradiometers at 6–10 locations throughout the United States"
- ▶ "The climatological network, which requires less sophisticated instrumentation and will eventually total between 30–40 monitoring stations"

49 Name of Site: U.S. Department Of Energy**Address of Site:** <http://www.doe.gov>**Site Description**

The Department of Energy has many files and pages relating to the topics of global climate change. One deeply-embedded page presents state-specific “GHG Emissions” inventories. Some values are null; but there is more relevant state and sector-specific documentation of the amounts of each greenhouse gas emitted during a control year.

Appropriate Audiences

Grades 4–12 • College • Teachers • Business • Policymakers

Examples of Contents

GHG Emissions for Massachusetts

50 Name of Site: U.S. Global Change Research Information Office**Address of Site:** <http://www.gcrio.org>**Site Description**

The U.S. Global Change Research Information Office (GCRIO) provides access to data and information on global change research, adaptation/mitigation strategies and technologies, and global change related educational resources on behalf of the U.S. Global Change Research Program (USGCRP) and its participating Federal Agencies and Organizations. GCRIO is implemented by The Center for International Earth Science Information Network (CIESIN) at Columbia University.

Appropriate Audiences

Specialists • Grades 10–12 • College • Teachers

Examples of Contents

“Global Change Documents and Publications” • “Global Change Data and Information Resources” • “U.S. Global Change Research Program (USGCRP)” • “Aspen Global Change Institute Home Page” • “Committee on Environment and Natural Resources Research (CENR)” • “Global Change Data and Information System (GCDIS)” • “Global Change Assisted Search for Knowledge (GC-ASK)” • “U.S. Global Change Data and Information System (GCDIS) Implementation Plan” • “National Institute for Global Environmental Change (NIGEC) Home Page” • “Related International Programs” • “U.S. Country Studies Program” • “Workshop Announcements” • “Interim Report on Climate Change Country Studies” • “USGCRP-Sponsored Research Programs” • “Global Change Data and Information System (GCDIS)” • “Global Change and Environmental Education Resources”

51 Name of Site: U.S. Global Change Research Program (USGCRP)

Address of Site: <http://www.usgcrp.gov>

Site Description

The USGCRP sponsors research to understand the vulnerabilities to changes in important environmental factors, including changes in climate, ultraviolet (UV) radiation at the Earth's surface, and land cover. Also available, is the GCDIS, a collection of distributed information systems which provides global change data including multidisciplinary data from atmospheric science, ecology, oceanography, as well as economics and sociology.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

“Regional Climate Change Workshops” • “USGCRP (U.S. Global Change Research Program)” • “USGCRP 2nd Monday Seminars” • “Global Change-Related Documents” • “Global Change Education” • “IPCC (Intergovernmental Panel on Climate Change)” • “GCRI (Global Change Research and Information Office)” • “GCDIS (Global Change Data and Information Services)”

52 Name of Site: USGS Global Change Research Program

Address of Site: <http://geochange.er.usgs.gov>

Site Description

The U.S. Geological Survey Global Change Research Program is an operational arm of the national U.S. Global Change Research Program (USGCRP).

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- ▶ “What’s new”: “Can the Global Carbon Budget be Balanced? A Fact Sheet”; “Impacts of Climate Change and Land Use on the Southwestern United States”; “A Web Workshop on This Site July 7th–25th, 1997”; “Data sets”; “Abstracts”; “Technical support”
- ▶ “Research Program:” “Climate HistoryCarbon Cycle”; “Processes and Regional Impacts”

53 Name of Site: U.S. Office of Global Programs (by NOAA)

Address of Site: <http://www.ogp.noaa.gov>

Site Description

NOAA has the primary responsibility within the Federal Government to routinely provide climate forecasts and products to the nation. OGP assists in this capacity by sponsoring focused scientific research, within approximately eleven research elements, aimed at understanding climate variability and its predictability.

Through studies in these areas, researchers coordinate activities that jointly contribute to improved predictions and assessments of climate variability over a continuum of time scales from season to season, year to year, and over the course of a decade and beyond.

Appropriate Audiences

Specialists • Grades 10–12 • College • Teachers • Policymakers • Public Relations

Examples of Contents

“About OGP and NOAA’s Climate and Global Change Program” • “OGP’s Research Program Elements” • “1998 Call for Proposals” • “Compilation of Research Projects Sponsored by OGP” • “International Research Institute for (IRI) climate prediction” • “Education and Outreach Products Office Location and Personnel Information” • “OGP’s ENSO Page”: Check out the current El Niño • “*What’s New*”

54 Name of Site: White House Initiative on Global Climate Change

Address of Site:

<http://www.whitehouse.gov/Initiatives/Climate/main.html>

Site Description

The flagship Web site of all United States global climate change policy, this site presents the Clinton Administration’s analysis and actions towards national and international interventions. Many aspects of international negotiations, national policy, science, uncertainty, impacts, and mitigative controls are introduced.

Appropriate Audiences

Specialists • Grades 7–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“President Clinton’s Climate Change Announcements” • “White House Conference on Climate Change” • “Texts of Administration Speeches” • “The Need for Action” • “Why Climate Change is on the Agenda Now” • “The Administration’s Approach” • “Working for a Cleaner Future” • “Emissions of Greenhouse Gases” • “Scientific Modeling”

Non-Governmental Organizations

55 Name of Site: Alliance to Save Energy

Address of Site: <http://www.ase.org>

Site Description

The Alliance to Save Energy is a nonprofit coalition of prominent business, government, environmental, and consumer leaders who promote the efficient and clean use of energy worldwide to benefit the environment, the economy, and national security.

Appropriate Audiences

Grades K–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “Consumer Page”: “Business Energy Checkup Site (Is Your Business Green?)”; “Home Energy Checkup”; “Energy Efficiency”; “Financing”; “Mortgages”; “Home Energy Ratings”
- ▶ “Educators Page”: “Green Schools”; “Free Lesson Plans”
- ▶ “Media Page”: “ASE News Releases”; “Fact Sheets”; “Alliance Publications”
- ▶ “Energy Industrial Professionals Page”: “Associates List”; “Associates Bulletin”
- ▶ “Alliance Programs: “Energy Efficiency in Buildings”; “Industrial Energy Efficiency and Competitiveness”; “Consumer Energy Education/Utility Support”; “Energy Policy Reform”; “International”

56 Name of Site: American Forests

Address of Site: <http://www.amfor.org/>

Site Description

American Forests is the nation’s oldest nonprofit citizen conservation organization, founded in 1875. American Forests plants millions of trees each year through its Global ReLeaf program, designed to restore damaged forests. Global ReLeaf tree planting projects offer a credible, low cost approach to offsetting greenhouse gas emissions, but they also incorporate a combination of local benefits that are independent of climate change. This makes tree planting an important part of corporate or community planning, for more reasons than one.

Appropriate Audiences

Grades 7–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “Climate Change and Tree Planting”: “Benefits of Tree Planting”; “Projects”; “Publications”
- ▶ “Calculate Your Carbon Debt”

- ▶ “Green Cities”
- ▶ “Global Releaf 2000 Project”
- ▶ “Tree Planting Project Grant Information”

57 Name of Site: Campaign for Climate Change (by WWF)

Address of Site: <http://www.panda.org/climate/>

Site Description

WWF has led international efforts to conserve nature and protect the diversity of life on Earth for nearly 40 years. Global warming and climate change pose a serious new threat to the survival of many species and to the well-being of people around the world. WWF believes in tackling the source of the problem. By 2001 it aims to ensure that industrialized nations set in motion a permanent downward trend in their domestic emissions of carbon dioxide (CO₂)—the leading global warming gas—as a first step towards substantial reductions in emissions by 2010. Their Web page aims to raise public awareness of such issues.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- ▶ “Global Warming: Health and Disease” (by Paul R. Epstein, M.D., M.P.H., Associate Director Center for Health and the Global Environment, Harvard Medical School)
- ▶ “Climate Change Information”: WWF Campaign, Climate Convention Fact Sheet, etc.
- ▶ “Take Action”: Writing campaign (send letters to government officials)
- ▶ “U.S. Policies and Measures Report”
- ▶ “Country to Country (CO₂ Emissions Per Capita)”

58 Name of Site: Center for Energy Efficiency and Renewable Technologies (CEERT)

Address of Site: <http://www.ceert.org>

Site Description

By aggregating the expertise and resources of its coalition members from both the public interest and business sectors, CEERT has emerged as a compelling force on behalf of clean, renewable energy resources and energy efficiency measures in key policy making debates on the local, state and federal level working to provide citizens with new opportunities to plug into clean power. Although based in California, CEERT is engaged in providing technical support to environmental advocates and clean technology developers in other regions. It has created and sustained alliances and coalitions, and built strong relationships with key environmental and renewable energy industry leaders in New England, Texas, the Pacific Northwest and the Rockies.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

“What is Clean Power?” Info on: Solar • Wind • Geothermal • Hydro • Fuel Cells • Biomass

59 Name of Site: Center for Environmental Information

Address of Site: <http://www.awa.com/nature/cei>

Site Description

CEI provides information and communication services, publications, and educational programs in order to: advance public understanding of environmental issues act as a communication link among scientists, educators, decision makers and the public advocate informed action based on the free exchange of information and ideas.

Appropriate Audiences

College • Business • Policymakers

Examples of Contents

- ▶ “CEI Programs and Services”: “Global Climate Change Digest”; “Environmental Events Calendar”; “Proceedings from the 1995 Conference on Sustainable Development and Global Climate Change—Conflicts and Connections Online”
- ▶ “The Environmental Library”
- ▶ “CEI’s Environmental Risk Communication Program”: “*Question of Risk* Video”
- ▶ “Upcoming Events”: “Kyoto and Beyond: Climate Change Policy Moves to Center Stage”; “Upcoming Events; Funding and Support”

60 Name of Site: Center for Renewable Energy and Sustainable Technology (CREST)

Address of Site: <http://solstice.crest.org/>

Site Description

Solstice is the Internet information service of the Center for Renewable Energy and Sustainable Technology (CREST). This site contains information concerning ways of reducing individual environmental impact through renewable energy, energy efficiency, and sustainability. There is also information here concerning the relationship between energy efficiency and cost-effectiveness (a site search should be performed to find the latter information).

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ Follow the following link: “Documents and Databases”; “Sustainable Living”; “Environment”; “Greenhouse Gas Emission Reports Sponsored by the U.S. Country Studies Program”
- ▶ “Environment On-Line”: Educational materials on climate change, energy, forests and biodiversity, water, ozone depletion, and natural resources
- ▶ “Discussion Groups” (e-mail list-serves)

61 Name of Site: Cities for Climate Protection

Address of Site: <http://www.iclei.org/co2>

Site Description

This Web site gives you a tour of the climate issues as it affects urban areas, and illustrates actions you can take as a citizen or local elected official.

Appropriate Audiences

Policymakers • Public Relations

Examples of Contents

- ▶ “Cities in Action”: Cities for Climate Protection Campaign
- ▶ “Energy Arcade”: Educational on-line activities
- ▶ “Members Club”: “Complete, on-line versions of ICLEI’s Cities for Climate Protection Campaign case studies and publications”
- ▶ “Virtual City Hall”: “Visit the Mayor’s Office to hear from Mayors speaking out on global warming, the City Council to learn about resolutions and actions plans, and departments to see how they implement ways of reducing CO₂ emissions”
- ▶ “News Stand”: ICLEI’s climate Change news database, a database of recent news articles related to the subject of Climate Change.
- ▶ “What your City Council needs to Know about the Greenhouse Effect and What to Do about It”

62 Name of Site: Climate Action Network (CAN) Newsletter

Address of Site: <http://www.igc.org/climate/Eco.html>

Site Description

The Climate Action Network is a network of non-government organizations who share a common concern for problems of climate change and wish to cooperate in the development and implementation of both short term and long term strategies to combat it. The Climate Action Network has eight regional focal points which co-ordinate these efforts in Africa, South Asia, South East Asia, Latin America, Central and Eastern Europe, Europe, the United Kingdom and the United States.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

From this page, you can access recent editions of *Eco*; back issues; and information about the organizations involved in producing *Eco*. Examples from Issue Number 1—Volume XCVII, October 21, 1997—“BONN: Speak Now!” • “MITI, Japan and the U.S.” • “Conference Reports” • “Hypocrisy from the Pump”

63 Name of Site: Climate Change Info Center

Address of Site: <http://www.preen.org>

Site Description

This site is dedicated to presenting comprehensive, timely and accurate information about issues relating to global climate change, with a bias towards information and events in and around western North America.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “Climate Change Basics”: “Terms and Acronyms”; “International System of Units (SI) Prefixes, Useful Quantities in CO₂”; “Common Conversion Factors”; “Common Energy Unit Conversion Factors”; “Geologic Time Scales”; “Factors and Units for Calculating Annual CO₂ emissions Using Global Fuel Production Data”
- ▶ “The Science of Climate Change”: “Climate Change Information Kit”; “Climate Change 1995—The IPCC 2nd Assessment Report”; “Relative Impacts of Greenhouse Gas Emissions (IPCC 1995)”; “Global Warming: Focus on the Future (EDF)”
- ▶ “The Politics of Climate Change”: “Kyoto Protocol to the United Nations Framework Convention on Climate Change (1997)”; “The Kyoto Conference and the Future of the Earth’s Climate (1998)”; “Climate Change Speech” (John Browne, Group Chief Executive, British Petroleum, May 1997); “John P. Holdren (Harvard JFK School of Government, June 1997) on Climate Change”

64 Name of Site: Climate Institute

Address of Site: <http://www.climate.org/>

Site Description

International non-governmental organization focused largely on climate change, by facilitating discussion between scientists, policy makers, business executives, and citizens.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “Climate Report: Global Warming and Weather Extremes”
- ▶ “Climate Models: How Reliable are Their Predictions?”
- ▶ “Climate Alert Articles”: “Conference Brings Together Broad Local Group to Explore Impact of Sea Level Rise on Chesapeake”; “Scientists Express Concern About Stability of East and West”; “Antarctic Ice Sheets”

65 Name of Site: Climate Protection Initiative (By World Resources Institute)

Address of Site: <http://www.wri.org/wri/cpi/aboutcpi.html>

Site Description

The CPI is a partnership between WRI and private firms to identify acceptable policies and business strategies for achieving strong climate protection goals. This institute-wide effort is motivated by the belief that there is a positive link between climate protection and a sound economy. Wider recognition of this linkage is essential for the development and implementation of an effective international climate treaty. The CPI is working with leading corporations to define Safe Climate, Sound Business Scenarios—policy pathways for stabilizing greenhouse gas concentrations and meeting world energy demand, while maintaining a healthy economic environment. It contributes to business strategies by developing case studies of how companies have overcome barriers to implementing carbon dioxide reduction initiatives to achieve financial and productivity benefits.

Appropriate Audiences

College • Teachers • Business • Public Relations

Examples of Contents

Publications (some are free of charge, others have an associated cost):

Safe Climate, Sound Business: An Action Agenda • *Building a Safe Climate, Sound Business Future* • *A Byte Out of Carbon: Electronics Innovation for Climate Protection* • *Climate Protection Policies: Can We Afford to Delay?* • *Climate Protection and the National Interest: The Links Among Climate Change, Air Pollution, and Energy Security* • *The Costs of Climate Protection: A Guide for the Perplexed* • *Carbon Counts: Estimating Climate Change Mitigation in Forestry Project* • *The Keys to the Car: Electric and Hydrogen Vehicles for the 21st Century* • *The Going Rate: What It Really Costs to Drive* • *Car Trouble* • *The Right Climate for Carbon Taxes: Creating Economic Incentives to Protect the Atmosphere* • *The Greenhouse Trap: What We are Doing to the Atmosphere and How We Can Slow Global Warming*

66 Name of Site: Committee for the National Institute for the Environment

Address of Site: <http://www.cnie.org>

Site Description

The Committee for the National Institute for the Environment is a national, non-profit organization working to improve the scientific basis for making decisions on environmental issues through creation of a new, non-regulatory environmental science and education entity, the National Institute for the Environment (NIE).

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“National Library for the Environment” • “Congressional Research Service Reports” • “Global Climate Change” • “International Environment: Current Major Global Treaties” • “Acoustic Thermometry of Ocean Climate, Marine Mammal Issues” • “Overview of NASA’s Mission to Planet Earth (MTPE)” • “Climate Change: Three Policy Perspectives” • “Population and Environment Linkages” • “Air and Climate” • “Air, Climate and Resources”: “Air Resources”; “Air Pollution”; “Air and Climate Systems”; “Air Sheds”; “Stratospheric Ozone”; “Global Warming/Greenhouse Effect” • “Air and Climate Policies”: “Local Air Policies”; “Climate Change Policy”; “Other Air/Atmospheric Policy”

67 Name of Site: The Earth Times

Address of Site: <http://www.earthtimes.org>

Site Description

The Earth Times is sponsored by the Earth Times Foundation, a not-for-profit foundation. Its Web edition is produced daily. Article archives can be searched for those articles related to climate change and global warming.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

Sample titles from the article archives: “Governments Need to Open Up to Industry to Halt Climate Change”; “1999 May Make or Break Kyoto Climate Change Treaty Process”; “Developing Countries Need to Support Limits on Global Emissions”; “One Industry’s View of Reducing Greenhouse Gas Emissions Globally”; “1999, Politics as Usual? A Look at the Federal Environment Agenda”; “New Weather Prediction Center Will Give Insight to Patterns and Phenomena”; “At Last, Climate Change Talks Get Some Backbone”

68 Name of Site: Environmental Defense Fund**Address of Site:** <http://www.edf.org>**Site Description**

Maintains Member Network to influence national environmental policy and works with grassroots groups at the local and regional level in the U.S. and abroad. There are global warming games on this site, under the “Focus on the Future” exhibit, such as: “Temperature Puzzle”, “CO2 Emission Puzzle” “Calculate Your CO2 Emissions” , “Twenty Things You Can Do”, “Global Warming Wordsearch”.

Appropriate Audiences

Grades 7–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Recent Climate Change News from EDF” • “Climate Change News from *Greenwire*” • “Contribute to EDF’S Climate change Program” • “Weathervane” • “A Call for Leadership” • “Global Warming: Could It Swamp Washington, DC?” • “A Cold-War Solution for a Warming World” • “Global Warming Is Already Here, Argues Author” • “EDF Scientist Reviews New Book on Global Warming” • “Population and Climate” • “20 Simple Steps to Reduce Global Warming” • “Global Warming: The History of an International Scientific Consensus” • “Global Warming—Facts vs. Myths” • Visit the Virtual Museum: “Global Warming—Focus on the Future” • “Global Warming—Understanding the Forecast”

69 Name of Site: Global Change**Address of Site:** <http://www.globalchange.org/gcintro.htm>**Site Description**

The Publication Global Change seeks to familiarize the public with the issues associated with climate change and ozone depletion.

Appropriate Audiences

Grades 10–12 • College • Teachers

Examples of Contents

Feature Article: “Pedal to the Metal—Americans Drive up Carbon Emissions” • “Global Change Monitor—A Review of Recent Anomalies, Data, and Trends” • “Climate and Ozone Science” • “Economics; Moderating Change” • “Actions, From the Individual to the International Levels, to Slow Global Change, Impacts” • “Consequences of Climate Change and Ozone Depletion, Adaption” • “Profiles” • “Other Sources of Information”

70 Name of Site: Global Climate Change Digest

Address of Site: <http://www.globalchange.org/digest.htm>

Site Description

The publication *The Global Climate Change Digest* is an interdisciplinary guide to current general and technical information related to climate change resulting from human activities, particularly global warming by greenhouse gases and stratospheric ozone depletion.

Appropriate Audiences

Specialists • Grades 10–12 • College

Examples of Contents

- ▶ Archives of all *Digest* editions published from July 1988 through January 1996:
“Individual recent issues of the *Digest* (from the last 18 months) will not be posted in the Archives until each is 19 months old, at which point each is ‘bumped’ into the Archives. So with each passing month, we advance the archives one month by adding another newer edition of the *Digest*. Access to the Archives is free....”

71 Name of Site: Global Energy Marketplace

Address of Site: <http://gem.crest.org/>

Site Description

This powerful, on-line, searchable database of more than 2500 energy efficiency and renewable energy annotated Web links has been sponsored by the U.S. EPA and created by CREST to promote a more sustainable energy future and mitigate global climate change that results from energy use. You will find highly useful case studies, reports, publications, economic analyses, product directories, discussion groups, country profiles, mitigation assessments, and other beneficial resources.

Appropriate Audiences

Policymakers • Public Relations

Examples of Contents

- ▶ *ReInState*: “An innovative guide to state-by-state renewable energy and sustainable development resources. It includes case studies, products and services, utility information, programs and policies, and energy usage and design data for each state.”
- ▶ Search GEM database by typing in a keyword or phrase or selecting a category supplied

72 Name of Site: Global Warming Information Page**Address of Site:** <http://www.globalwarming.org/>**Site Description**

This web site is a project of the Cooler Heads Coalition, a sub-group of the Consumer Coalition. The Cooler Heads Coalition was formed on May 6, 1997 to dispel the myths of global warming by exposing flawed economic, scientific, and risk analysis. Coalition will also follow the progress of the international Global Climate Change Treaty negotiations. Another great site supporting the argument that there is not a global climate change problem.

Appropriate Audience

Business

Examples of Contents

“Hot Times or Hot Air: The Sun in the Science of Global Warming”

• “Conserving Energy May Not Solve Global Warming” • “Researcher Finds Ancient Heat Wave” • “Harvard-Smithsonian Physicist Calls Sun’s Variability The Greatest Factor in Global Climate Change” • “Motor Vehicle Carbon Dioxide Emissions Found to Be a Limited Factor in the Greenhouse Effect”

73 Name of Site: Global Warming and Mortality**Address of Site:** <http://www.ciesin.org/TG/HH/morthmpg.html>**Site Description**

CIESIN Thematic Guides (Provisional Release). Describes potential increases in mortality due to Global Warming.

Appropriate Audiences

Grades 10–12 • College • Teachers • Policymakers • Public Relations

Examples of Contents

“The Basic Mechanisms Underlying How Global Warming May Influence Health” • “The Effects of Ambient Temperature on Mortality” • “How and Where Climatic Parameters Are Expected To Vary due to Global Warming” • “Sensitive Population Groups and Global Warming” • “The Degree to which Mitigating Factors May Modify the Effects of Global Warming on Mortality” • “Models That Predict Potential Increases in Mortality due to Global Warming”

74 Name of Site: Greenpeace: Climate Science**Address of Site:** <http://www.greenpeace.org/~climate/>**Site Description**

Greenpeace has identified global climate change as one of the greatest threats to the planet. This site outlines the issues of climate change, and some of Greenpeace’s campaigns to raise public awareness concerning those issues.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Carbon Hypocrisy” • “Renewable Energy” • “Buying a Fridge to Save the Environment” • “What You Can Do” • “Climate Science

75 Name of Site: The National Center for Public Policy Research On Global Warming

Address of Site: <http://www.nationalcenter.org/Kyoto.html>

Site Description

The National Center for Public Policy Research is a communications and research foundation dedicated to providing free market solutions to today's public policy problems. In the 1980's, the National Center supported the Reagan administration initiatives concerning the USSR, Arms Control, Central America, and human rights. Now in the 1990's a leading campaign of the National Center is Environmental Stewardship, with the belief that private owners are the best stewards, with a “Laissez-Faire” approach towards government regulation. This is a great site to visit for information supporting the argument that there isn't a global climate change problem.

Appropriate Audiences

Grades 10–12 • College • Business

Examples of Contents

- ▶ “Global Warming Not Responsible for 1998's Unusual Weather”: National Policy Analysis #228 explains why 1998 weather patterns don't prove global warming is their cause; by David Ridenour of The National Center for Public Policy Research (January, 1999)
- ▶ “Is the Global Warming Treaty a Threat to National Security?”: Brief Analysis #277; by Sterling Burnett of the National Center for Policy Analysis (August, 1998)
- ▶ “The Road to Kyoto: How the Global Climate Treaty Fosters Economic Impoverishment and Endangers U.S. Sovereignty”: A Heritage Foundation comprehensive review of the global warming treaty by Angela Antonelli, Brett D. Schaefer, and Alex Annett, (October 6, 1997)

76 Name of Site: National Environmental Trust**Address of Site:** <http://www.eic.org>**Site Description**

The purpose of this site is to demonstrate to the public, press, and policy makers that environmental change poses a serious threat to our environment, economic development and quality of life, and that policies to mitigate change will improve economic competitiveness and the standard of living in the United States. Follow the links to pages on climate change issues. The web address may change some time this year to **www.envirottrust.com**.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Effects of Climate Change on the Land—Animated Flooding of Coastlines Following a One-meter Rise in Sea Level” • “Powering The Future—Clean Energy for a Clean Environment” • “Basic Facts About Global Warming” • “Implications of Global Warming for Life on Earth” • “Climate Countdown Update”

77 Name of Site: NWF: Climate Change and Wildlife Program**Address of Site:** <http://www.nwf.org/nwf/international/cchange/>**Site Description**

The National Wildlife Federation focuses its work on specific core area environmental issues and then educates, inspires, and assists people to conserve our precious natural resources. This page focuses on the current or presumed effects of climate change upon wildlife.

Appropriate Audiences

Grades 7–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Climate Change and Wildlife in New England” • “Resolutions, Lies, and Climate Change” • “The Kyoto Protocol” • “Frequently Asked Questions About Climate Change” • “Steps the United States Can Take” • “The U.S. Climate Change Commitment and President Clinton’s Comments” • “Climate Change: NWF’s Efforts” • “Climate Change: How to get Involved”

78 Name of Site: Ozone Action: Global Warming Page**Address of Site:** <http://www.ozone.org/page20.html>**Site Description**

Ozone Action is a non-profit, public interest organization. Ozone Action responds to climate skeptics, answers daily media inquiries, and provides analysis of the latest science and policy developments on atmospheric issues. Ozone

Action educates the public and assists the media through its extensive contacts in government, among scientists, activists and with its library of scientific articles, investigative reports and fact sheets covering many aspects of climate change and ozone depletion.

Appropriate Audiences

Specialists • Grades 4–12 • Teachers • Business • Public Relations

Examples of Contents

- ▶ Fact Sheets: “Global Warming and Agriculture”; “Emissions of Greenhouse Gases”; “Impacts of Global Warming”; “Global Warming and Human Health”; “Global Warming and Sea Level Rise”; “How You Can Conserve Energy and Fight Global Warming”; “What Would it Take to Stop Climate Change?”; “The Links Between Ozone Depletion and Global Warming”
- ▶ Reports: “Current Effects of Climate Change Roundtable”; “The Case for Early Action—An Ozone Action Report on Global Climate Change”
- ▶ Testimony: Testimony of John Passacantando on the Kyoto Treaty to the House of Representatives Committee on Government Reform and Oversight Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs

79 Name of Site: PBS Online: NOVA

Address of Site: <http://www.pbs.org/wgbh/nova/>

Site Description

Since May of 1996, *Nova* and PBS have produced a series of real-time expeditions, called “Nova/PBS Online Adventures.” The adventures follow scientists and explorers into the field, reporting on science as it happens, and allowing the Internet audience to participate via e-mail.

Appropriate Audiences

Specialists • Grades 4–12 • College • Teachers • Business

Examples of Contents

- ▶ Expeditions Directly Involving Climate Change: “Tracking El Niño”; “Warnings from the Ice”
- ▶ Expeditions Indirectly Involving Climate Change: “Alive on Everest!”

80 Name of Site: Physicians for Social Responsibility

Address of Site: <http://www.psr.org>

Site Description

Physicians for Social Responsibility's Environment and Health Program aims to ensure that the public's health—especially the health of children and other vulnerable populations—comes first in setting the nation's environmental agenda. To this end, PSR works to ensure that the best available scientific and medical expertise underlies environmental legislation, regulations and policies.

Appropriate Audiences

Grades 7–12 • College • Teachers • Policymakers • Public Relations

Examples of Contents

“Global Climate Change and Human Health” • Press Release: “Nobel Laureates Ask World Leaders to Move Quickly on Global Warming” • “PSR Monitor on Climate Change”

81 Name of Site: Reporting on Climate Change: Understanding the Science

Address of Site: <http://www.nsc.org/ehc/guidebks/climtoc.htm>

Site Description

This publication is a product of the Environmental Health Center, National Safety Council. November 1994.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

► Links to chapters in the publication: “Introduction”; “Chapter 1: A Science Story on an Environmental Reporters Beat”; “Chapter 2: Climate and Natural Variability”; “Chapter 3: Greenhouse Gases—Some Basics”; “Chapter 4: How Warm? How Fast? Scientific Consensus and Debate”; “Chapter 5: Ozone Depletion—When Less Is Not Enough”; “Chapter 6: Working with Scientists and Scientific Sources on Climate Change”; “Chapter 7: Scientists' Tools for Seeking Answers—Scientific Method and Verifications”; “Glossary”; “Appendix A: Sources for Additional Information”; “Appendix B: References and Resources”

82 Name of Site: Sierra Club Global Warming News

Address of Site: <http://www.sierraclub.org/global-warming>

Site Description

This program seeks to educate, motivate and empower citizen activists to participate in the public policy debate, and to provide educational materials and information to policy makers, the media and the general public.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Global Warming and Energy Campaign” (Background information) • “Global Warming Resources” • “The Climate Report—Things You Can Do to Stop Global Warming” • “Energy News” • “Global Warming—News by Date” (October, 1995–December, 1996)

83 Name of Site: Tidepool: Climate

Address of Site: <http://www.tidepool.org/id.hot.html>

Site Description

“Tidepool,” an online environmental news service, is part of the “Inforain” Bioregional Information System, which focuses on the larger bioregional community and working together to solve common problems with positive, sustainable solutions. This page specifically addresses climate change and the news.

Appropriate Audiences

Grades 7–12 • College • Teachers

Examples of Contents

Sampling of articles: “Yellow Cab Company Goes Green” • “Northwest Could Become Clean Energy World Leader” • “Warmer Climate No Blessing to Northwest” • “Economics and the Fight Against Global Warming” • “Carbon Storage Key to Fighting Global Warming” • “Science Isn’t in Yet On Pollution Credits” • “Climate Change Mitigation Can Start At Home” • “Coral Could Be Environmental Warming” • “Oyster Disease Linked to Climate Change” • “Can Antennas Clear Mexico’s Smog?” • “BP Will Offer Cleaner Fuels to Cities” • “Warmer Nights Kill Grass on Colorado’s Steppe” • “Antarctic Scientists Listen for Ancient Signals” • “Arctic Ozone Loss Concerns Scientists” • “Solid Waste Burners May Be Bigger Threat than Cars” • “Weather On Tiny Island May Hold Clues To Climate Change” • “Beware a Kyoto Compromise”

84 Name of Site: Understanding Global Climate Change:

Address of Site: http://www.facsnet.org/report_tools/climate.html

Site Description

FACS educates journalists about news content through comprehensive online reports. This online report is aimed for journalists seeking background on global warming issues. Included is an excellent overview of the political history of the

Appropriate Audience

Public Relations

Examples of Contents

“The Latest Headlines” • “Basic Issues” • “Politics” • “Science” • “Viewpoints”
• “Economics”

85 Name of Site: Union of Concerned Scientists (UCS)

Address of Site: <http://www.ucsusa.org/>

Site Description

The Union of Concerned Scientists tackles problems of global sustainability and global security. Its work focuses on the following issue areas: global warming, agriculture, arms control, energy, global resources, and transportation.

Appropriate Audiences

Grades 7–12 • College • Teachers • Policymakers • Public Relations

Examples of Contents

- ▶ “Global Warming”: “What Is Global Warming?”
- ▶ “What Does UCS Think of the Position on Global Warming President Clinton Recently Announced? See their most recent press release...”
- ▶ “At the UCS Science Summit, prominent scientists worldwide issued a statement calling for strong action on global warming”

86 Name of Site: Weathervane: A Digital Forum on Global Climate Policy

Address of Site: <http://www.weathervane.rff.org>

Site Description

“Weathervane” is an online forum designed to provide the news media, legislators, opinion leaders, and the interested public with analysis and commentary on U.S. and global policy initiatives related to climate change.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

A Summary of U.S. Positions on Climate Change Policy • An Analysis on Clinton’s Proposal for Reducing Greenhouse Gas Emissions • “In the Hands of the Citizenry—A Global Referendum on Climate Policy” • “Will Technology-Based Climate Strategies Work in Developing Countries?” • “Something for Everyone: A Climate Policy That Both Environmentalists and Industry Can Live With” • “Additional Environmental Benefits of Climate Policies Assessed”

87 Name of Site: World Meteorological Organization

Address of Site: <http://www.wmo.ch>

Site Description

From weather prediction to air pollution research, climate change-related activities, ozone layer depletion studies and tropical storm forecasting, the World Meteorological Organization coordinates global scientific activity to allow increasingly prompt and accurate weather information and other services for public, private and commercial use, including international airline and shipping industries.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

► “Links To WMO Programmes”: “World Climate Programme”; “World Climate Research Programme”; “Global Climate Observing System”

Trade and Industry Organizations

88 Name of Site: American Petroleum Institute

Address of Site: <http://www.api.org/>

Site Description

Although the U.S. oil and gas industry has some doubts about the level of certainty in the scientific research to date, the industry favors taking action now to address potential climate change. Follow links on this site to pages entitled “climate change” or “global warming.” Here there are updates on world-wide climate legislation, voluntary programs in the industry to reduce carbon emissions, and American Petroleum Institute’s stance on the issues.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- “Climate Treaty Update”: “Berlin Mandate”; “Clinton/Gore Policy”
- “Stakes in Kyoto”: “Personal Impacts”; “Business and Industry”; “U.S. and Global Economies”; “Emissions Equity”
- “Industry is Helping”: “API Position”; “Voluntary GHG Reductions”; “Recommended Actions”
- “What’s Happening?”: “Global Temperatures”; “Sea Level Rise”; “Greenhouse Gases”
- “Climate Science”: “IPCC Stresses Uncertainty”; “Computer Models”
- “Economic Impacts”: “Key Considerations”; “National Impacts”; “State Impacts”
- “Viewpoints”: “Business”; “Congress”; “Labor”; “Media”; “Academia”
- “Notable Quotes”

89 Name of Site: Edison Electric Institute**Address of Site:** <http://www.eei.org>**Site Description**

Edison Electric Institute (EEI) is the trade association representing shareholder-owned electric utilities. As the industry leader, EEI is dedicated to helping our 180 member companies assure consumers a reliable, economic, and environmentally sound supply of electricity. This site serves to keep members and other interested parties up to date on the issues, or to direct them to sources that can.

Appropriate Audiences

Grades 10–12 • Business • Public Relations

Examples of Contents

“What’s New at the EEI Site” • “Environmental Issues Report ” • “The Electric Power Industry Today” • “Environmental Issues” • “Global Climate Change”

90 Name of Site: Electric Power Research Institute**Address of Site:** <http://www.epri.com>**Site Description**

Created by U.S electric utilities in 1973, EPRI is one of America’s research consortia. EPRI scientists and engineers develop innovative solutions to the world’s toughest energy problems while expanding opportunities for a dynamic industry. The Model Evaluation Consortium for Climate Assessment (MECCA) was created in 1991 with the following three goals: to perform numerical experiments that will identify and quantify the uncertainties associated with predictions of greenhouse gas– induced climate change for models used to advise public policy; to create a protocol for analyzing the experimental results and applying them to policy; and to communicate findings in order to advance model development.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- ▶ “Global Climate Policy Cost Analysis and Integrated Assessment”
- ▶ “Assessment of the Potential Impacts of Global Climate Change”
- ▶ “Utility Greenhouse Gas Risk Management”
- ▶ “Global Climate Change Brochure”: “Overview ”; “Components of EPRI Climate Change Research”; “Integrated Assessment Framework”; “Modeling Emissions”; “Environmental Response to Greenhouse Gases”; “Economic Assessment Research”; “Utility Risk Management”; “The Growing Role of Electronics in the Climate Issue”; “Further Reading”
- ▶ “Model Evaluation Consortium for Climate Assessment (MECCA)”

91 Name of Site: Pew Center on Global Climate Change

Address of Site: <http://www.pewclimate.org/home.html>

Site Description

The Center's work on climate change has four major programmatic thrusts, the most active of which is the development of the Business Environmental Leadership Council. The Council is a group of leading companies worldwide that are responding to the challenges posed by global climate change. The Council will explore how companies can contribute to solutions at home and abroad through their own products, practices and technologies.

Appropriate Audiences

Specialists • Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

“Declaration” and list of Center companies (Boeing Company, Toyota, etc.) • “Media Center” (Press releases, transcripts, advertisements, opinion editorials, etc.)

92 Name of Site: Western Fuels Association

Address of Site: <http://www.westernfuels.org>

Site Description

Western Fuels Association is “an especially aggressive industry player,” having publicized scientific information expressing skepticism about apocalyptic global climate change and the likelihood the effect of increased atmospheric concentration of CO₂ will be benign. This site has links to information that shows the “other side of the debate.”

Appropriate Audiences

Grades 10–12 • College • Business • Policymakers • Public Relations

Examples of Contents

Resources available to order: “The Greening of Planet Earth”; “1997 State of the Climate Report”; “1996 State of the Climate Report”; “Greenhouse Forecasting Still Cloudy”; “CO₂ and the Biosphere—The Incredible Legacy of the Industrial Revolution”; “The Greening of Planet Earth—Its Progression from Hypothesis to Theory”; “Will Plants Profit from High CO₂?”; “Future Climate and the Precautionary Principle: The Other Side of the Story”

Miscellaneous

93 Name of Site: The California Energy Commission

Address of Site: <http://www.energy.ca.gov/index.html>

Site Description

The California Energy Commission is the state's primary energy policy and planning agency, charged with ensuring a reliable and affordable energy supply. The California Energy Commission is state tax funded.

Appropriate Audiences

Specialists • College • Business • Public Relations

Examples of Contents

"Renewable Energy Programs" • "Education Quest"

94 Name of Site: EV (Electric Vehicle) World

Address of Site: <http://www.evworld.com/>

Site Description

An online magazine, *EV World* provides the latest news, interviews, and previews of electric vehicles.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- ▶ *EV World* Interview Playlist (Interviews on RealPlayer 5.0 with leading EV racers, owners, and scientists)
- ▶ "Reports Archive": "Jeep Fuel Cell Concept Car"; "Honda VV Hybrid-electric"; "Arizona EV Incentives"; "Inductive vs. Conductive Battle"; "Alameda EV Expo 1998"; "Toyota Prius Report"; "Why America Needs AFVs"; "Flywheel Development In Mexico"
- ▶ "Test Drive Reviews"
- ▶ "EV Stock Report"

95 Name of Site: The Environmental Council of the States (ECOS)

Address of Site: <http://www.sso.org/ecos/global.htm>

Site Description

The Environmental Council of the States is a national non-profit, non-partisan association of state and territorial environmental commissioners. At the request of the U.S. Environmental Protection Agency, ECOS recently formed a committee to address issues related to global climate change.

Appropriate Audiences

Specialists • Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “State Climate Change Summaries”: Very brief but detailed information about States’ environmental policies, laws, legislation, regulations, etc.
- ▶ “Climate Change Survey Report”: Tally of states on questions such as, “How would you describe the public’s interest in this issue in your state?”
- ▶ “Climate Contacts by State”
- ▶ “Vermont’s Climate Change Web Forum”
- ▶ “DOE’s Energy Fitness Program”

96 Name of Site: Intergovernmental Panel on Climate Change (IPCC)

Address of Site: <http://www.ipcc.ch/>

Site Description

The IPCC is organized into three working groups: Working Group I concentrates on the climate system, Working Group II on impacts and response options, and Working Group III on economic and social dimensions.

Appropriate Audiences

Specialists • Grades 10–12 • College • Policymakers

Examples of Contents

- ▶ “Climate Change 1995”: “Technical Papers”: “Working Group I Working Group II”: “Working Group III”
- ▶ “Ordering Details and Press Releases”

97 Name of Site: International Energy Agency (IEA) Greenhouse Gas Research and Development Program

Address of Site: <http://www.ieagreen.org.uk/>

Site Description

The IEA Greenhouse Gas Research and Development Programme identifies means of reducing the emission of greenhouse gases arising from the use of fossil fuels. Initially, the emphasis was placed on carbon dioxide emissions from power generation but now other greenhouse gases and other sources are also being examined. The first three-year phase of the programme ran from 1991 to 1994 and the second phase began in November, 1994.

Appropriate Audiences

Specialists • College • Policymakers

Examples of Contents

“What is the IEA Greenhouse Gas Research and Development Programme?” • “The Science of Global Warming” • “Technical Solutions for Greenhouse Gas Reduction” • “GHGT-4: Fourth International Conference on Greenhouse Gas Control Technologies” • Further information, conferences and publications

98 Name of Site: The International Institute for Energy Conservation (IIEC)

Address of Site: <http://www.iiec.html>

Site Description

The International Institute for Energy Conservation (IIEC) seeks to accelerate the adoption of energy-efficient policies, technologies, and practices in developing countries to enable economically and environmentally sustainable development.

Appropriate Audiences

Grades 10–12 • College • Teachers • Public Relations

Examples of Contents

“March, 1997 E-notes Insert on Climate Change” • “June 1996 E-notes insert on Supporting Climate Action in Developing Countries” • “Climate Change Policy Publication”

99 Name of Site: International Human Dimensions Programme On Global Environmental Change

Address of Site: <http://www.uni-bonn.de/ihdp/index.html>

Site Description

IHDP is an international, interdisciplinary, non-governmental social science programme dedicated to promoting and coordinating research aimed at describing, analyzing and understanding the human dimensions of global environmental change.

Appropriate Audiences

Specialists • College • Teachers • Policymakers

Examples of Contents

“IHDP Science Projects”: “Land-Use and Land-Cover Change (LUCC)”; “Global Environmental Change and Human Security (GECHS)”; “Institutional Dimensions of Global Change (IDGC)”; “Industrial Transformation (IT)”

100 Name of Site: Joint Implementation

Address of Site: <http://www.ji.org>

Site Description

This web site is designed to be an online resource for information about world-wide Joint Implementation (JI) activities.

Appropriate Audiences

Specialists • College • Policymakers • Public Relations

Examples of Contents

“United States Initiative on Joint Implementation (USJI)” • “United Nations Framework Convention on Climate Change”

101 Name of Site: Junk Science

Address of Site: <http://www.junkscience.com>

Site Description

The Junk Science Home Page is a product of Steven J. Millroy, the Executive Director of the Advancement of Sound Science Coalition (TASSC). The purpose of this Page is to distinguish between “good” and “bad” science. This page definitely provides “food for thought.” Follow links to information on global climate change.

Appropriate Audiences

Specialists • Grades 10–12 • College • Teachers • Business • Policymakers •

Examples of Contents

“Behavior of World’s Glaciers Fails to Prove Global Warming Theory” (March 8, 1999) • “The First Family’s Asthma Problems” (March 8, 1999): Yes, this one actually involves global climate change!

102 Name of Site: New Scientist: Global Warming

Special Report from Kyoto

Address of Site: <http://www.keysites.com/nsplus/insight/global/>

Site Description

New Scientist Planet Science is the Web site of *New Scientist* Magazine, a science and technology weekly publication. This page is the magazine’s ongoing report on the science of climate change and its effect on global politics. Discusses both the pros and cons of the climate change debate, with more emphasis on the “pro” side of the argument.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “Frequently Asked Questions About the Science of Global Warming: How It Happens and What We Can Do About It”
- ▶ “Frequently Asked Questions on the Politics of Global Warming: The Positions of the Major Countries and Organizations Involved at the Summit”
- ▶ Timeline From the Discovery of the “Greenhouse Effect” in France in 1827 to the Global Battling Over Global Warming Today—How Our Knowledge of the Problem Has Grown as Temperatures Rise
- ▶ “The Scientific Debate: They’re Among the World’s Top Scientists and They Don’t Believe in Global Warming; We Meet the SkSeptics”

103 Name of Site: New York Times on Global Warming

Address of Site:

<http://www.nytimes.com/library/national/warming-index.html>

Site Description

Several newspapers and television networks have Web sites that have either a page devoted to climate change/global warming or a search engine. The search engines, using the right terms, such as “climate change” or “global warming” may produce a list of the newspaper or television’s latest shows/articles concerning climate change.

Appropriate Audiences

Specialists • Grades 4–12 • College • Teachers • Business • Policymakers • Public Relations

Examples of Contents

- ▶ The following *New York Times* articles are available to read: “Climate Pact: Health Care Revisited?” (Alison Mitchell); “In Kyoto, the Subject Is Climate; The Forecast Is for Storm (William K. Stevens); “Who Cares About a Few Degrees? (Andrew C. Revkin); “Deep in Siberia’s Forest, Finding Clues to the ‘Missing Sink’ (Deborah Shapely); “No Simple Fight: The Forces That Shaped the Plan (John H. Cushman, Jr. and David E. Sanger); “Congress, the Kibbitzer at the Climate Table, Waits for Its Turn (Eric Shmitt); “Coal Nightmares, Electrical Dreams (Matthew L. Wald); “Getting New York Ready For a Hotter, Wetter Future (Andrew C. Revkin); “Turning Green Puts Some in the Black Now (John H. Cushman, Jr.); “How Fast to Cut Back? Two Views (Peter Passell)
- ▶ Other resources: “Global Warming Article Archive”; “Online Global Warming Sources”; “Glossary of Climate Terms”; “The Lobbyists Debate, Forums”; “Timeline”; “International Roundup”

104 Name of Site: Public Utilities Commission, Ohio:
On Global Climate Change

Address of Site:

<http://www.puc.state.oh.us/consumer/gcc/index.html>

Site Description

Contains a file Country and Regional Studies of Climate Change. There are studies for the U.S. in addition to Africa, Antarctica, Asia, Central America/Caribbean, Eastern Europe/Former Soviet, Europe, Middle East, North America, Pacific Island Region, and South America.

Appropriate Audiences

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Examples of Contents

Country and Region Studies of Climate Change: “The Science of Global Climate Change” (An Index of GCC Science-Related sites, An Overview of GCC Science); “A Chronology of Global Climate Change” (From pre-history to the present); “Common Acronyms in Climate Change” (Decipher your way through the issues surrounding GCC); “Definitions of Climate Change Terms” (A nice collection of definitions and links to other sites); “Climate Change Policy” (A discussion of the economic and societal impacts at hand); “Joint Implementation (Activities Implemented Jointly by Any Other Name)”; Links to Other Sites (Global Climate Change, Energy, Sustainable Development, Environmental, Regulatory Agencies, GCC Policy, General Science); “Country and Regional Studies of Climate Change” (Africa, Antarctica, Asia, Central America/Caribbean, Eastern Europe/Former Soviet, Europe, Middle East, North America, Pacific Island Region, South America); “Electric Restructuring Impacts on Global Change (How Might Competition and Restructuring Affect Emissions?)” “Advanced Technology and Global Change” (Cutting-Edge Technologies Related to Global Change); “Newsletter Sources on GCC and New Additions”

105 Name of Site: United Nations Climate Change Secretariat

Address of Site: <http://www.unfccc.de/>

Site Description

The United Nations established a permanent secretariat regarding climate change, headquartered in Bonn, Germany. This is its Web site. It provides data of emissions, removals and projections of and for Convention signatory nations. The Web site facilitates getting information to developing country Parties, and prepares reports for the necessary coordination of Parties and other relevant U.N. Secretariats.

Appropriate Audiences

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Examples of Contents

“The Convention” • “Kyoto Protocol” • “The Secretariat” • “What is Climate Change?” • “Country Information” • “Emissions and Other Data” • “Meetings/Workshops”

106 Name of Site: United Nations: Information for Conventions (IUC)

Address of Site: <http://www.unep.ch/iuc/>

Site Description

There are fact sheets here, as well as other sources of information concerning climate change. In addition, there is general information about the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer and that do not directly address the issue of climate change.

Appropriate Audiences

Grades 10–12 • College • Teachers • Business • Policymakers

Examples of Contents

- ▶ “The Causes of Climate Change; The climate system; The role of human activities”
- ▶ “The Impacts of Climate Change”
- ▶ “The International Response to Climate Change: International Law and the UN Energy and Economics; New Techniques and Strategies”

107 Name of Site: Utility Guide; Information Network for Electricity Users

Address of Site: <http://www.utilityguide.com>

Site Description

UG is a free service provided to inform residential and small commercial consumers of their electrical choices; whether to minimize impact on the environment, or to find the cheapest price

Appropriate Audiences

Specialists • Grades 7–12 • College • Teachers • Business

Examples of Contents

“Top News Items” • “Electrical Suppliers” (a List) • “Laws and Politics Affecting the Industry” • “Green Choices” (Information about “Green Power”)

108 Name of Site: Vermont Comprehensive Energy Plan and Vermont Greenhouse Gas Action Plan

Address of Site: <http://www.state.vt.us/psd/cepGuide.htm>

Site Description

A summary of a 700-page comprehensive energy and greenhouse gas control plan developed by the State of Vermont. It examines the state's patterns of energy use and of other factors such as manufacturing, waste management, alternative energy and their economic and social costs. It proposes a program of controls at the level of State and regional policy.

Appropriate Audiences

Specialists • Grades 7–12 • College • Teachers • Business • Policymakers

Examples of Contents

“Energy use in Vermont” • “Options for Future Electric Sources” • “Sustainability Impacts” • “Energy Options” • “Policy Analysis Affordability” • “Internalizing Full Costs in the Price of Energy” • “Carbon Tax” • “Energy Legislation” • “Human Well-Being”

Alphabetical Listing of Web Sites

Please note: Web site categories are referenced by citation numbers, not by page numbers.

Site Name	Site Address and Citation Number
Alliance to Save Energy	http://www.ase.org 55
Alternative Fuels Data Center (AFDC)	http://www.afdc.nrel.gov/ 29
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American Petroleum Institute	http://www.api.org/ 88
AskEric Virtual Library	http://askeric.org/virtual 1
Aspen Global Change Institute	http://gcio.org/agci-home.html 2
Atmospheric Research and Info Centre (ARIC)	http://www.doc.mmu.ac.uk/aric/ace/teach.html 10
The California Energy Commission	http://www.energy.ca.gov/index.html 93
Campaign Climate Change (by WWF)	http://www.panda.org/climate/ 57
Center for Environmental Information	http://www.awa.com/nature/cei 59
Center for Energy Efficiency and Renewable Technologies (CEERT)	http://www.ceert.org 58
Center for Integrated Study of the Human Dimensions of Global Change	http://freyja.epp.cmu.edu/ 11
Center for Global Health and the Environment	http://www.med.harvard.edu/chge/ 14
Center for Renewable Energy and Sustainable Technology (CREST)	http://solstice.crest.org/ 60
The CERES S'Cool Project (by NASA)	http://asd-www.larc.nasa.gov/scool/ 28
Cities for Climate Protection	http://www.iclei.org/co2 61
Climate Action Network (CAN) Newsletter	http://www.igc.org/climate/Eco.html 62
Climate Change and the Federal Budget (U.S. Congressional Budget Office)	http://www.cbo.gov/ 30
Climate Change Information Center	http://www.preen.org 63
Climate Institute	http://www.climate.org/ 64
Climate Protection Initiative (by World Resources Institute)	http://www.wri.org/wri/cpi/ 65
Climate Research Unit of the United Kingdom	http://www.cru.uea.ac.uk/ 12
Climatologist's Toolbox	http://whyfiles.news.wisc.edu/021climate/index.html 3
Committee for the National Institute for the Environment	http://www.cnie.org 66
Earth and Sky	http://www.earthsky.com 4
The Earth Times	http://www.earthtimes.org 67

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Eisenhower National Center	http://watt.enc.org/ 5
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EPA's Office of Research and Development: Atmospheric Protection Branch	http://www.epa.gov/crb/apb/index.htm 35
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EPA's State and Local Outreach Program's Quarterly Newsletter "Inside the Greenhouse"	http://www.epa.gov/globalwarming/greenhouse 37
EPA's State and Local Climate Change	http://www.icf-infotech.com/ghg/ghg.nsf 38
Exploratorium	http://www.exploratorium.edu 7
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Global Change Data Center	http://www.tsdis.gsfc.nasa.gov/gcdc/gcdc.html#top 39
The Global Change Master Directory (by NASA)	http://gcmd.gsfc.nasa.gov 40
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Global Warming and Mortality	http://www.ciesin.org/TG/HH/morthmpg.html 73
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The Infinite Power of Texas: Renewable Power	www.infinitepower.com 8

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International Human Dimensions Programme on Global Environmental Change	www.uni-bonn.de/ihdp/index.html 99
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Iowa State University Global Change Program	http://www.iitap.iastate.edu 15
Junk Science	http://www.junkscience.com 101
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National Environmental Trust	http://www.eic.org 76
Planetvision	http://www.envirolink.org/orgs/edf 9

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Reporting on Climate Change: Understanding the Science	http://www.nsc.org/ehc/guidebks/climtoc.htm 81
Sierra Club Global Warming News	http://www.sierraclub.org/global-warming 82
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University of Delaware: Synoptic Climatology Lab	http://www.udel.edu/SynClim/scl.html 24
University of Massachusetts: Climate Research Center	http://www.geo.umass.edu/climate/climate.html 25
University of New Hampshire: Climate Change Research Center (CCRC) And Institute for Earth, Oceans, and Space (EOS)	http://www.grg.sr.unh.edu/ccrc/ 26
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